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Stephen Hordley

Dated

11 December 2003

THE PATENT OFFICE

K

31 OCT 2002



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P01/7700 0.00-0225346.6

Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
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NP10 8QQ

1. Your reference BKCD/IRJ/AD/FUE.1

2. Patent application number
(The Patent Office will fill in this part) 0225346.6

3. Full name, address and postcode of the or of each applicant (underline all surnames)
Benjamin Fuest
3 Falcon Cottage
Brockhampton
Hereford
HR1 4TQ

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

8495913001

4. Title of the invention
Device for Fixing an Object to a Tree and Inhibiting its Growth

5. Name of your agent (if you have one)
Wynne-Jones, Laine & James
"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)
22 Rodney Road
Cheltenham
Glos. GL50 1JJ
United Kingdom

Patents ADP number (if you know it) 1792001

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number	Country	Priority application number (if you know it)	Date of filing (day / month / year)
	--		

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application	Number of earlier application	Date of filing (day / month / year)
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8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

- a) any applicant named in part 3 is not an inventor, or
- b) there is an inventor who is not named as an applicant, or
- c) any named applicant is a corporate body.

See note (d))

No

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form.
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Continuation sheets of this form

Description 6
Claim(s) 1
Abstract -
Drawing(s) 1 + 1 R

10. If you are also filing any of the following, state how many against each item.

Priority documents -
Translations of priority documents -
Statement of inventorship and right to grant of a patent (*Patents Form 7/77*) -
Request for preliminary examination and search (*Patents Form 9/77*) -
Request for substantive examination (*Patents Form 10/77*) -
Any other documents -
(*please specify*)

11. I/We request the grant of a patent on the basis of this application.

Signature Wynne-Jones, Laine & James Date 30th October 2002

12. Name and daytime telephone number of person to contact in the United Kingdom

Mr B K C Dunlop

01242 515807

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

- a) If you need help to fill in this form or you have any questions, please contact the Patent Office on 08459 500505.
b) Write your answers in capital letters using black ink or you may type them.
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Device for Fixing an Object to a Tree and Inhibiting its Growth

The present invention relates to fixing an object to a tree and inhibiting growth of the tree.

Fixing objects to trees can cause damage. This is particularly the case when several fixtures have to be made, for example when a lightning protection system is fitted. Conventionally, plastic or metal nails or screws are used for this purpose. However, as the tree grows these fixing devices become fully embedded in the tree and can cause disfigurement. This is particularly a problem for rare or "veteran" trees which are of scientific or historical value.

According to a first aspect of the present invention there is provided a device for fixing an object to a tree and inhibiting growth of the tree, the device including:

a body constituting, incorporating or supporting a device adapted for retaining an object thereon, the body further having a fixing member adapted for fixing the body to a tree, and

a device adapted for inhibiting growth of at least part of the tree adjacent the fixing member.

The inventor has found that using such a device that inhibits growth of the tree to attach an object to the tree means that it is possible to prevent the device becoming fully embedded within the tree. This is because the growth rate of the tree is slowed down and so measures can be taken to prevent the device from being fully embedded before the tree grows over it.

The fixing member may be located at one end of the body. The fixing member may taper to a sharp end point. The fixing member can be provided

with a screw thread for helping insert it into the tree and keep it in place.

The growth-inhibiting device may include a biasing device for applying pressure in a direction generally towards the fixing member. The pressure is usually slightly lower than that resulting from the expansion of the growing tree.

5 The biasing device may be formed of a resilient material. In one embodiment the biasing device comprises a compression spring. One end of the biasing device may abut a projection on the body.

10 The retaining device may include or may be constituted by the body and may further include the biasing device such that in use the biasing device applies pressure to retain the object between the biasing device and the tree. The retaining device may further include a washer or a ring, in use the washer or ring being located between the object and the adjacent end of the biasing device. This can help secure the object in position.

15 The body may be comprised of a plurality of elongate members, each of which may be generally cylindrical and/or have a smooth surface. The plurality of elongate members may be connected together by means of corresponding threaded projections and bores. The length of the body can be extended by inserting further elongate members.

20 Some or all of the components forming the device may be formed of plastics or metal, such as stainless steel. The object may be part of a lightning protection system for the tree.

The device can also be used to inhibit the growth of the tree even if it is not desired to fix another object to the tree and in this case the fixing components can remain unused or be omitted.

Whilst the invention has been described above, it extends to any inventive combination of the features set out above or in the following description.

The invention may be performed in various ways, and, by way of example only, an embodiment thereof will now be described, reference being made to the accompanying drawings, in which:-

Figure 1 is an exploded diagram of an embodiment of the device;

Figure 2 illustrates schematically the device in use, and

Figure 3 illustrates an alternative component part of the device.

The device is generally indicated at 10 in Figure 1. The device 10 includes four components 12, 14, 16, and 18 which make up an elongate body. The component 12 located at one end of the elongate body acts as a fixing member. The component 12 has generally cylindrical portion leading to a tapering portion 13 that in turn leads to a sharp pointed end. The tapering portion 13 is provided with a screw thread. Within the other end of the component 12 is a threaded blind bore 13A.

The device 10 has a central portion which, in the example, is formed of two substantially cylindrical component 14, 16 that have smooth curved outer surfaces. A threaded projection 15 extending from one end of the cylindrical component 14 fits into the bore 13A of the fixing component 12. The other end of the cylindrical component 14 includes a threaded blind bore 15A. The component 16 is substantially identical to the component 12 and has a threaded projection 17 which is used to connect it to the bore 15A of the component 14.

The other end of the component 16 has a blind bore 17A. It will be

appreciated that further components such as the components 14 or 16 can be used to extend the overall length of the device 10. It will also be understood that the components making up the central portion need not be identical in length. Alternative means of attaching the components together can be used, e.g. adhesives or clips.

When the device is assembled the components 12, 14, 16 will usually be screwed together first. A washer 20 can then be slipped onto the elongate body formed by the components, the washer being positioned near the fixing component 12. A compression spring 22 is then fitted onto the components to encircle them. The spring 22 has a diameter slightly greater than that of the central portion of the device so that it can easily be compressed/uncompressed. The final stage of assembling the device 10 normally involves screwing an end piece 18 into the bore 17A of the component 16. The end piece 18 can be a nut having a threaded projection 19 and a cylindrical portion 19A having a diameter greater than that of the cylindrical components 14, 16.

Turning to Figure 2, the device is shown fixing an object 30 to a tree 32. The object in the example is a cylindrical cable clip 30 having a central aperture of a diameter substantially similar to that of the smooth components 14, 16. This type of clip is particularly suitable for use with the device but it will be appreciated that the object could be any suitable body that it is desired to fix to the tree. Before fixing the device to the tree, the device 10 is inserted through the aperture in the clip 30.

The threaded portion 13 and an adjacent part of the component 12 can then be screwed/pushed into the side of the tree. Thus, the device 10 projects

outwards from the tree at an angle of around 90°. One end of the clip 30 abuts the surface of the tree 32, whilst its other end abuts the washer 20. As the spring 22 is compressed between the end piece 18 and the washer 20, it exerts a pressure on the washer which is transferred to the clip 30 and hence the tree 32. If the object does not form a complete loop (as the clip 30 of the example), the pressure from the spring can in any case retain it on the body during normal use. The pressure is transmitted through the clip 30 to the surface of the tree. In an alternative embodiment, a tube or resilient material or a plurality of springs may be used to provide the bias on the object.

A growing tree will typically exert an outward pressure of around 8.44 kg/cm² (120 psi). The spring 22 is selected so that it can exert a pressure slightly lower, e.g. 10%, than this to inhibit the growth. As the tree grows, the ring 30 and the washer 20 are pushed against the bias of the spring 22 towards the end piece 18. The extent of the growth inhibition depends on several factors, such as the age and type of tree. A version of the device tested by the inventor includes cylindrical component 14, 16 which provide a total length of around 8 cms and a diameter of around 7 mm. The device further comprises a compression spring of around 56 mm in length in its uncompressed state and a diameter of around 10 mm. These components are estimated to inhibit the growth of a tree so that it does not engulf the device for around five years after it has been fitted. Thus, the device may not need any modifications or attention over this period.

The tree may eventually grow to a size which would mean that the device 10 and clip 30 are in danger of being embedded or causing damage to the tree

10 and clip 30 are in danger of being embedded or causing damage to the tree or the device is at risk of failing. At this point the end piece 18 of the device can be removed and a further smooth cylindrical portion can be fitted. It may also be necessary or desirable to replace the spring 22 with another one having different dimensions to exert a pressure of a different magnitude. The end piece 18 is then replaced so that pressure is again exerted on the washer 20, the clip 30 and the tree 32.

Figure 3 shows an alternative version 12B of the fixing component 12. Whereas the component 12 of Figure 1 includes a cylindrical portion to which the cylindrical component 14 is attached, the component 12B has a frusto-conical portion 12C whose narrow end leads to a threaded tapering portion 13B. The length of the portion 13B is around 45 mm. The diameter of the larger end of the frusto-conical portion is around 15mm (which is somewhat larger than the usual diameter (approx. 8mm) of the cylindrical portion 14). A threaded blind bore 13D is included in other end of the frusto-conical portion, into which a cylindrical component 14 can be threaded, and a washer 20 will also normally abut the face of the portion 12C in use (as shown for the embodiment of Figure 2). The component 12B is usually cheaper to manufacture than component 12.

The embodiments described above can be produced at low cost. The components are typically formed of durable materials such as plastic or metal, e.g. stainless steel. The device can therefore provide a cheap and reliable way of attaching an object to a tree whilst reducing the risk of damage.

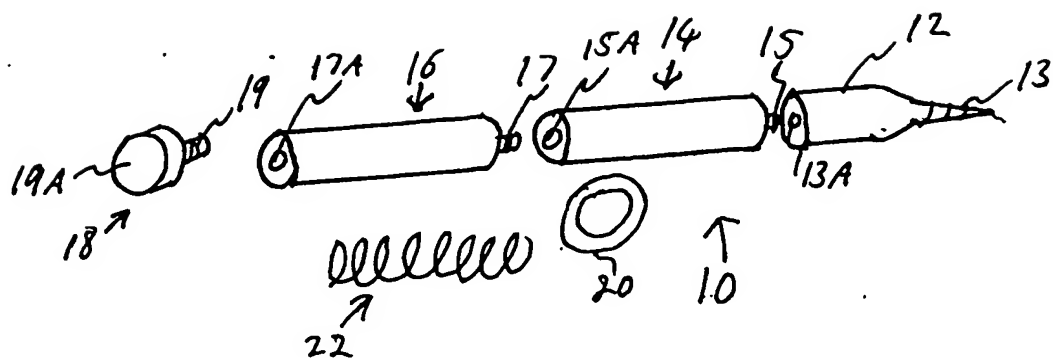


FIG. 1

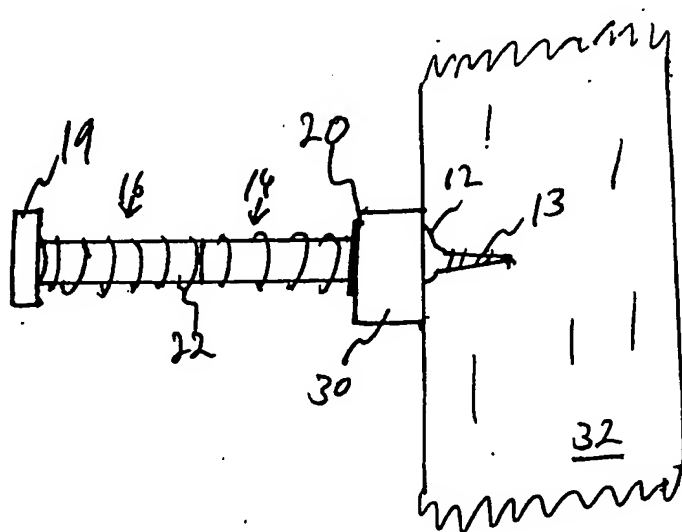


FIG. 2

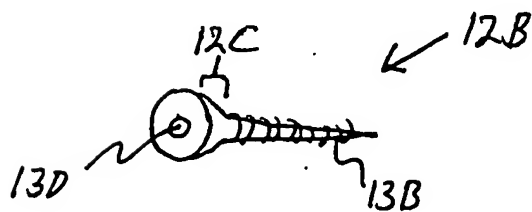


FIG. 3

PCT Application

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